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OHIO FARM MACHINERY ECONOMIC COST ESTIMATES FOR 1994

Revised and Adapted for Ohio*
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The tables in this publication estimate farm machinery operations or function costs for 1994. The estimates use an economic engineering approach to the costs of providing machine sevices to crop farming. The data represents an average farming industry cost for specified machines and operations.

Machine costs are separated into time and use-related categories. Overhead costs accrue to the owner whether or not a machine is used. Overhead includes time-related economic costs; depreciation, interest, insurance and housing. There are no personal property taxes in Ohio. Operating costs occur only when a machine is used. They include fuel, lubrication, use-related repairs and labor charges.

OVERHEAD COSTS: Time-related costs are prorated over a 10-year economic life. The 1993 American Society of Agricultural Engineer's (ASAE) Yearbook procedures are followed for estimating salvage values. Salvage values at 10 years of life now range from 16 to 30 percent. Producers are keeping machinery longer than in the past. Managers, striving for cost control, are sometimes buying a second item, often "twinned" to one now in use.

Purchase prices are discounted from manufacturer's list. A 10 percent discount off list price appears "normal." The tables include some adjustment for delivery and setup. An equivalent price adjustment for the income tax expensing option is not included. Interest rate is assumed to be 8.5 percent. Insurance is 0.75 percent of new cost. A housing charge of 33 cents per square foot of shelter space needed per year is made.

Formulas used to compute machinery overhead costs:

$$\text{Depreciation per year} = \frac{\text{purchase cost - salvage value}}{\text{years you will use machine}}$$

$$\text{Interest per year} = \frac{\text{purchase cost + salvage value}}{2} \times \text{interest rate}$$

$$\text{Insurance per year} = \frac{\text{purchase cost + salvage value}}{2} \times \text{rate}$$

Housing per year = price per sq. foot x sq. feet shelter space required

Taxes per year = 0 (no taxes on personal property in Ohio)

OPERATING COSTS: Fuel cost is calculated by multiplying the fuel consumption by the price of fuel, with fuel consumption assumed to be 0.058 gallons of diesel fuel per horsepower hour. The price of farm diesel fuel is projected at 85 cents per gallon. All power units, tractors, combines, trucks, etc., are assumed to use diesel fuel. Lubrication cost is assumed to be 10 percent of fuel cost.

The formulas for repair and maintenance costs estimate total accumulated repair costs according to the accumulated hours of life-time use. Repair and maintenance calculations are also based on ASAE formula. The total cost is then divided to an average per hour cost estimate. The amount of annual use of a machine is an estimate of the number of hours a commercial farmer would use that particular machine in one year.

Labor is charged at an hourly wage rate, which includes 30 percent for benefits. Charge rates are $9.00 per hour for unskilled labor and $11.50 per hour for skilled labor. Labor per acre for an operation such as plowing and disking is calculated by using the work rate on the implement. Less labor per acre is used in a disking operation that covers more acres per hour than in a plowing operation.

Several reduced and conservation tillage implements were added in 1994. Minimum tillage planters are included. This reflects the current interest in reduced tillage practices.

Average machine function cost per acre worked show some changes from previous years. Field speeds have increased in line with current practices. The new ASAE repair functions generally lower repair costs per acre and hour. Use lives are increasing, tending to lower overhead cost per year. Labor charges were increased. The assumption made about the number of acres of use has a major influence on the average overhead and the average total machine function cost per acre.

The following table compares the machinery function total costs per acre for four selected items from 1990-1994.

Field Operation, medium	**1990**	**1991**	**1992**	**1994**
plow, 6-16'	$12.61	$13.19	$13.42	$12.25
corn planter, 6-30	11.28	11.40	10.20	9.68
combine small grain	19.43	19.82	20.74	15.09
combine corn, 6-30	30.42	31.71	30.92	23.48

These estimates will not represent any given individual's cost. They can still be used to help plan the cropping operation if more specific data are not available. Differences in buying power, repair programs, average annual use and overall replacement programs should be considered when making adjustments.

Machinery costs are substantial; control of them is important. Custom charges are often based upon them. No one should do custom work unless the charge will cover operating costs plus a return for one's risk and time. Ideally all allocated per acre or hour overhead costs should also be covered by anyone offering to do custom work. The market for custom work usually does not cover all costs. The market is usually somewhere between the operating costs and the total of operating plus allocated per acre or hour overhead costs.

Tables 1-5 provide the 1994 machinery function costs broken down into several categories.

Table 1 Tractors, Combines (Without Heads) & Trucks Economic Cost for 1994

Tractor Combine or Truck Size	Net Cost of The New Power Unit	Annual Hours of Use	-- Overhead -- Cost per Year	-- Overhead -- Cost per Hour	-- Operating -- Expense per[3/] Hour	-- Operating -- Expense per[3/] Year	-- Total Cost -- per Year of Use	-- Total Cost -- /Hour of Use[1/]	Maintenance & Repair Cost/Hr.	Diesel Use/Hr. Gallons
40 Hp	16,500	500	2,182	4.36	2.65	1,325	3,507	7.01	0.58	2.1
60 Hp	20,800	500	2,747	5.49	3.84	1,918	4,665	9.33	0.73	3.2
75 Hp	26,200	500	3,454	6.91	4.81	2,404	5,858	11.72	0.92	4.0
100 Hp	39,000	550	5,127	9.32	6.68	3,675	8,803	16.00	1.50	5.3
120 Hp	53,600	550	7,032	12.79	8.28	4,554	11,586	21.07	2.06	6.4
140 Hp	56,800	550	7,472	13.59	9.44	5,192	12,664	23.03	2.19	7.4
160 Hp	62,000	600	8,150	13.58	10.89	6,536	14,686	24.48	2.60	8.5
180 Hp	69,600	600	9,141	15.24	12.25	7,349	16,491	27.48	2.92	9.5
190 HP	72,000	600	9,458	15.76	12.87	7,720	17,178	28.63	3.02	10.1
225 Hp 4Wd	74,300	500	9,771	19.54	12.78	6,388	16,159	32.32	1.11	11.9
250 Hp 4Wd	80,100	500	10,527	21.05	14.15	7,077	17,604	35.21	1.20	13.3
275 Hp 4Wd	86,000	500	11,296	22.59	15.54	7,771	19,067	38.13	1.29	14.6
300 Hp 4Wd	91,300	500	11,987	23.97	16.91	8,456	20,443	40.89	1.37	15.9
320 Hp 4Wd	95,400	500	12,522	25.04	18.01	9,005	21,527	43.05	1.43	17.0
350 Hp 4Wd	108,100	500	14,178	28.36	19.75	9,877	24,055	48.11	1.62	18.5
Combine Sma	69,300	300	9,530	31.77	15.09	4,528	14,059	46.86	9.91	5.3
Combine Med	85,000	300	11,700	39.00	18.38	5,513	17,213	57.38	12.16	6.4
Combine Lar	100,200	300	13,801	46.00	21.85	6,556	20,357	67.86	14.33	7.7
Combine Jum	106,000	300	14,617	48.72	25.53	7,658	22,275	74.25	15.16	10.6
Pickup Truck	18,100	500	2,546	5.09	3.20	1,602	4,148	8.30	0.27	3.0
Medium Truck	44,200	500	6,155	12.31	4.57	2,287	8,441	16.88	0.66	4.0
Tandem Truck	50,600	500	7,050	14.10	5.35	2,677	9,727	19.45	0.76	4.7

*See footnotes at end of tables.

Table 2 Tillage Equipment Economic Cost Structure for 1994

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1]	Total Cost/Acre[2] Equipment Tractor	+ Machine	+ Labor Charge	= Total Dollars	Operating Expense / Acre[3]	Diesel Fuel Gal/Ac
Chisel Plow 10 Ft	75	3,300	6.79	679	26.99	1.73	0.90	1.35	3.98	0.84	0.59
Chisel Plow 15 Ft	120	4,900	10.18	1,018	39.06	2.07	0.87	0.90	3.84	0.95	0.62
Chisel Plow 17 Ft	140	5,000	11.54	1,154	41.28	2.00	0.79	0.80	3.58	0.94	0.64
Chisel Plow 19 Ft	160	5,900	12.90	1,290	43.87	1.90	0.79	0.71	3.40	0.97	0.66
Chisel Plow 25 Ft	190	12,360	16.97	1,697	58.91	1.69	1.24	0.54	3.47	0.96	0.59
Chisel Plow 31 Ft	250	15,820	21.04	2,104	71.44	1.67	1.29	0.44	3.39	0.88	0.63
Chisel Plow 39 Ft	300	17,800	26.47	2,647	80.61	1.54	1.15	0.35	3.05	0.83	0.60
Moldboard Plow 2-16	40	1,700	1.23	148	18.79	5.69	2.10	7.44	15.23	2.62	1.72
Moldboard Plow 3-16	60	3,000	1.85	223	23.09	5.03	2.47	4.95	12.45	2.62	1.71
Moldboard Plow 4-16	75	7,400	2.47	297	32.05	4.74	4.51	3.71	12.97	2.96	1.61
Moldboard Plow 5-16	100	8,900	3.09	371	38.64	5.18	4.36	2.97	12.51	3.14	1.72
Moldboard Plow 6-16	120	10,500	3.71	482	45.45	5.68	4.10	2.47	12.25	3.26	1.71
Moldboard Plow 7-16	140	13,600	4.33	562	51.82	5.32	4.54	2.12	11.98	3.33	1.72
Moldboard Plow 8-16	160	15,300	4.94	643	55.71	4.95	4.46	1.86	11.27	3.33	1.72
Moldboard Plow 9-18	225	21,200	6.26	939	69.92	5.16	4.54	1.47	11.17	3.44	1.91
Moldboard Plow 10-18	225	23,300	6.95	1,043	72.73	4.65	4.49	1.32	10.46	3.22	1.72
Moldboard Plow 12-18	275	27,300	8.35	1,252	83.93	4.57	4.39	1.10	10.06	3.21	1.75
Field Cultivator 12 Ft	75	3,100	9.02	1,082	25.82	1.30	0.55	1.02	2.86	0.63	0.44
Field Cultivator 18 Ft	100	4,700	9.27	1,113	32.47	1.73	0.79	0.99	3.50	0.87	0.57
Field Cultivator 28 Ft	160	11,100	14.42	1,731	50.40	1.70	1.16	0.64	3.49	0.98	0.59
Field Cultivator 37 Ft	225	13,500	19.06	2,287	61.81	1.70	1.07	0.48	3.24	0.88	0.63
Field Cultivator 45 Ft	250	19,220	32.45	3,895	73.04	1.08	0.88	0.28	2.25	0.61	0.41
Field Cultivator 50 Ft	250	19,800	36.06	4,327	74.01	0.98	0.82	0.25	2.05	0.55	0.37

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Table 2 Tillage Equipment Economic Cost Structure for 1994 (Continued)

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1]	------ Total Cost / Acre[2] ------ Equipment Tractor + Machine	Labor Charge	= Total Dollars	Operating Expense / Acre[3]	Diesel Fuel Gal/Ac
Field Cultivator 54 Ft	300	35,200	38.95	4,673	101.91	1.05	1.33	0.24	2.62	0.70	0.41
Disk Chisel H.D. 8 Ft.	140	8,700	4.65	465	46.97	4.95	3.17	1.97	10.09	2.55	1.59
Disk Chisel H.D. 13 Ft.	190	12,800	7.56	756	59.49	3.79	2.87	1.21	7.87	2.18	1.33
Disk Chisel H.D. 16 Ft.	250	14,500	9.31	931	69.00	3.78	2.64	0.99	7.41	1.96	1.42
Disk Chisel H.D. 18 Ft.	300	20,500	10.47	1,047	84.76	3.90	3.31	0.88	8.09	2.16	1.52
Disk Chisel 9 Ft.	100	6,500	5.41	541	35.57	2.96	1.92	1.70	6.58	1.45	0.98
Disk Chisel 11 Ft.	140	9,500	6.40	640	48.38	3.60	2.53	1.43	7.56	1.89	1.16
Disk Chisel 18 Ft.	250	19,500	10.47	1,047	77.27	3.36	3.14	0.88	7.38	1.87	1.27
Disk Chisel 21 Ft.	300	20,200	12.22	1,222	84.20	3.35	2.79	0.75	6.89	1.85	1.30
Offset Disk 14 Ft.	140	8,100	6.49	649	45.43	3.55	2.04	1.41	7.00	1.68	1.14
Offset Disk 16 Ft.	160	9,500	7.42	742	49.15	3.30	2.09	1.24	6.63	1.70	1.14
Offset Disk 18 Ft	180	10,000	8.35	835	53.03	3.29	1.96	1.10	6.35	1.68	1.14
Offset Disk Wing 21 Ft	225	12,400	9.74	974	61.41	3.32	2.05	0.94	6.31	1.54	1.23
Offset Disk Wing 23 Ft	225	16,500	10.66	1,066	67.76	3.03	2.46	0.86	6.35	1.48	1.12
Heavy Duty Disk 18 Ft	160	14,300	8.35	835	56.44	2.93	2.73	1.10	6.76	1.61	1.02
Heavy Duty Disk 24 Ft	190	17,400	11.13	1,113	65.39	2.57	2.48	0.82	5.88	1.44	0.90
Heavy Duty Disk 27 Ft	250	20,100	12.52	1,252	76.31	2.81	2.55	0.73	6.10	1.42	1.06
Heavy Duty Disk 33 Ft	300	24,800	15.30	1,530	89.43	2.67	2.57	0.60	5.85	1.40	1.04
Tandem Disk 10 Ft star	60	5,100	5.15	515	26.78	1.81	1.61	1.78	5.20	0.92	0.62
Tandem Disk 16 Ft	100	10,500	8.24	824	42.04	1.94	2.05	1.11	5.10	1.04	0.64
Finish Tdm. Disk 18 Ft	120	13,400	9.27	927	51.57	2.27	2.30	0.99	5.56	1.15	0.69
Finish Tdm. Disk 21 Ft	140	16,600	10.82	1,082	58.59	2.13	2.44	0.85	5.42	1.15	0.69
Finish Tdm. Disk 27 Ft	190	20,800	13.91	1,391	70.85	2.06	2.38	0.66	5.09	1.19	0.72
Finish Tdm. Disk 33 Ft	250	24,100	17.00	1,700	82.73	2.07	2.26	0.54	4.87	1.09	0.78

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Table 2 Tillage Equipment Economic Cost Structure for 1994 (Continued)

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1]	------ Total Cost / Acre[2] ------ Equipment Tractor + Machine	Labor Charge	= Total Dollars	Operating Expense / Acre[3]	Diesel Fuel Gal/Ac
V-Ripper 25" O.C. 10 Ft	140	6,700	6.18	618	43.67	3.72	1.85	1.48	7.06	1.82	1.20
V-Ripper 25" O.C. 14 Ft	190	9,100	8.65	865	53.34	3.31	1.79	1.06	6.16	1.77	1.16
V-Ripper 25" O.C. 18 Ft	250	13,400	11.13	1,113	67.15	3.16	2.05	0.82	6.04	1.60	1.19
V-Ripper 25" O.C. 22 Ft	300	16,200	13.60	1,360	77.78	3.01	2.04	0.67	5.72	1.57	1.17
V-Ripper 30" O.C. 12 Ft	140	6,800	7.42	742	43.93	3.10	1.58	1.24	5.92	1.52	1.00
V-Ripper 30" O.C. 17 Ft	190	9,100	10.51	1,051	53.50	2.72	1.49	0.87	5.09	1.46	0.96
V-Ripper 30" O.C. 22 Ft	250	13,400	13.60	1,360	67.52	2.59	1.70	0.67	4.96	1.31	0.97
Comb Fld Cult Incorp 16	140	19,400	11.54	1,154	64.80	2.00	2.82	0.80	5.62	1.27	0.64
Comb Fld Cult Incorp 23	190	24,600	16.59	1,659	79.11	1.73	2.49	0.55	4.77	1.18	0.61
Comb Fld Cult Incorp 26	250	26,600	18.03	1,803	89.10	1.95	2.48	0.51	4.94	1.18	0.73
Comb Fld Cult Incorp 33	300	33,800	23.80	2,380	106.89	1.72	2.39	0.39	4.49	1.09	0.67
Comb Disk & V-Ripper 12	190	16,900	6.44	644	64.46	4.45	4.14	1.43	10.01	2.47	1.56
Comb Disk & V-Ripper 17	250	21,600	9.02	902	78.67	3.91	3.80	1.02	8.73	2.00	1.47
Dsk,Fld Cult Finish 19	140	15,700	9.79	979	57.41	2.35	2.57	0.94	5.87	1.25	0.76
Dsk,Fld Cult Finish 24	190	18,300	12.36	1,236	67.25	2.32	2.38	0.74	5.44	1.31	0.81
Dsk,Fld Cult Finish 30	250	24,200	15.45	1,545	83.32	2.28	2.52	0.59	5.39	1.20	0.86
Springtooth Drag 30 Ft	60	7,700	21.64	649	56.04	0.43	1.71	0.45	2.59	0.23	0.15
Springtooth Drag 48 Ft	75	9,700	29.67	1,039	62.81	0.39	1.39	0.33	2.12	0.22	0.13
Spring Tooth Drag 58 Ft	100	11,600	35.85	3,585	44.73	0.45	0.55	0.25	1.25	0.27	0.15

*See footnotes at end of tables.

Table 3 Planting Equipment Economic Cost Structure for 1994

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1/]	------ Total Cost / Acre[2/] ------ Equipment Tractor	+ Machine	+ Labor Charge	= Total Dollars	Operating Expense / Acre[3/]	Diesel Fuel Gal/Ac
Row Crop Planter 4-36	40	9,000	5.60	392	40.39	1.25	3.58	2.38	7.21	0.79	0.38
Row Crop Planter 6-36	60	12,700	8.40	588	50.80	1.11	3.35	1.59	6.05	0.75	0.38
Row Crop Planter 6-30	60	11,800	7.00	490	48.82	1.33	3.74	1.91	6.97	0.88	0.45
Row Crop Planter 8-30	75	15,800	9.33	653	59.94	1.26	3.74	1.43	6.42	0.84	0.43
Row Crop Planter 12-30	100	22,800	14.00	980	79.73	1.14	3.60	0.95	5.70	0.79	0.38
Min-Til Planter 4-36	60	14,600	5.09	356	54.74	1.83	6.30	2.62	10.75	1.31	0.62
Min-Til Planter 6-36	75	19,500	7.64	535	67.79	1.53	5.60	1.75	8.88	1.13	0.52
Min-Til Planter 8-36	100	24,600	10.18	713	83.13	1.57	5.28	1.31	8.16	1.13	0.52
Min-Til Planter 6-30	75	18,700	6.36	509	61.59	1.84	5.74	2.10	9.68	1.36	0.63
Min-Til Planter 8-30	100	23,700	8.48	594	81.19	1.89	6.11	1.57	9.57	1.33	0.62
Min-Til Planter 12-30	160	44,100	12.73	1,273	109.05	1.92	5.60	1.05	8.57	1.65	0.67
Min-Til Planter 16-30	190	57,000	12.73	1,655	117.77	2.25	5.96	1.05	9.25	2.18	0.79
Potato Planter Filler		10,100	5.75	322	27.77	0.00	4.83	0.00	4.83	0.38	0.02
Potato Row Marker 4 Row	120	8,900	4.98	214	64.56	4.23	5.87	2.86	12.97	1.77	1.28
Potato Row Marker 6 Row	140	13,600	7.47	321	81.98	3.08	5.98	1.91	10.98	1.37	0.99
Potato Row Marker 8 Row	160	18,100	10.79	464	98.31	2.27	5.52	1.32	9.11	1.11	0.79
Potato Planter 4 Row	120	27,800	3.83	214	119.55	5.50	19.08	6.64	31.21	3.43	1.66
Potato Planter 6 Row	140	39,000	5.75	322	151.00	4.01	17.85	4.42	26.28	2.83	1.29
Potato Planter 8 Row	140	51,000	8.30	465	182.64	2.77	16.16	3.06	22.00	2.21	0.89
Beet Planter 12 Row	100	23,500	4.67	280	88.90	3.43	12.56	3.06	19.05	2.34	1.14
Grain Drill 25 Ft	120	24,500	10.61	848	81.71	1.99	4.51	1.20	7.70	1.26	0.60
Grain Drill 30 Ft	140	27,000	12.73	1,018	88.52	1.81	4.14	1.00	6.96	1.18	0.58
Grain Drill 35 Ft	140	28,100	14.85	1,188	90.69	1.55	3.70	0.86	6.11	1.03	0.50

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Table 3 Planting Equipment EconomicCost Structure for 1994 (Continued)

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1/]	------ Total Cost / Acre[2/] ------ Equipment Tractor	+ Machine	+ Labor Charge	= Total Dollars	Operating Expense / Acre[3/]	Diesel Fuel Gal/Ac
Presswheel Drill 12 Ft	75	13,000	5.09	382	51.32	2.30	5.27	2.51	10.08	1.46	0.78
Presswheel Drill 16 Ft	100	16,900	6.79	509	63.64	2.36	5.14	1.88	9.37	1.48	0.78
Presswheel Drill 20 Ft	120	20,500	8.48	636	76.14	2.48	4.99	1.50	8.97	1.46	0.75
Presswheel Drill 24 Ft	140	25,300	10.18	764	87.97	2.26	5.12	1.25	8.64	1.43	0.73
Presswheel Drill 30 Ft	160	31,800	12.73	1,018	99.17	1.92	4.87	1.00	7.79	1.37	0.67
Presswheel Drill 40 Ft	180	40,300	16.97	1,358	118.63	1.62	4.62	0.75	6.99	1.21	0.56
Air Seeder Drill 28 Ft	180	41,900	11.88	950	121.49	2.31	6.84	1.07	10.23	1.76	0.80
Air Seeder Drill 36 Ft	250	50,500	15.27	1,222	145.86	2.31	6.41	0.84	9.55	1.61	0.87
No-Till Drill 15 Ft	140	30,875	6.36	509	95.62	3.62	9.40	2.01	15.03	2.49	1.17
No-Till Drill 21 Ft	180	34,000	8.91	713	106.23	3.08	7.41	1.43	11.92	2.17	1.07
No-Till Drill 30 Ft o	190	37,400	12.73	1,018	114.05	2.25	5.71	1.00	8.96	1.62	0.79

*See footnotes at end of tables.

Table 4 Crop Maintenance Equipment Economic Cost Structure for 1994

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1]	------ Total Cost / Acre[2] ------ Equipment Tractor	+ Machine	+ Labor Charge	= Total Dollars	Operating Expense / Acre[3]	Diesel Fuel Gal/Ac
Cultivator 4-36	40	3,100	6.18	618	21.42	1.13	0.82	1.51	3.46	0.51	0.34
Cultivator 6-36	60	4,700	9.27	927	26.33	1.01	0.82	1.01	2.84	0.50	0.34
Cultivator 6-30	60	3,700	7.73	773	24.71	1.21	0.78	1.21	3.20	0.58	0.41
Cultivator 8-30	75	6,300	10.30	1,030	31.22	1.14	0.98	0.91	3.03	0.57	0.39
Cultivator 12-30	140	8,700	15.45	1,545	46.22	1.49	0.90	0.61	2.99	0.71	0.48
Ridge-Cultivator 4-36	75	5,300	6.18	618	29.59	1.90	1.36	1.53	4.79	0.92	0.64
Ridge-Cultivator 6-36	100	7,400	9.27	927	37.24	1.73	1.27	1.02	4.02	0.86	0.57
Ridge-Cultivator 8-36	100	11,000	12.36	1,236	42.83	1.29	1.41	0.76	3.46	0.69	0.43
Ridge-Cultivator 6-30	100	7,000	7.73	773	36.46	2.07	1.44	1.21	4.72	1.02	0.69
Ridge-Cultivator 8-30	100	9,600	10.30	1,030	40.52	1.55	1.47	0.91	3.93	0.81	0.51
Ridge-Cultivator 12-30	160	16,200	15.45	1,545	60.68	1.58	1.64	0.70	3.93	0.88	0.55
Rotary Hoe 15 ft.	75	3,500	18.55	1,855	27.00	0.63	0.32	0.50	1.46	0.30	0.21
Rotary Hoe 21 ft.	100	6,300	25.96	2,596	35.92	0.62	0.41	0.36	1.38	0.31	0.20
Rotary Hoe 30 ft.	140	8,300	37.09	3,709	46.24	0.62	0.37	0.25	1.25	0.31	0.20
Potato Cultivator 4 Row	75	3,800	5.36	778	25.76	2.18	0.87	1.75	4.80	1.09	0.74
Potato Cultivator 6 Row	75	5,700	8.04	1,126	28.33	1.46	0.90	1.16	3.52	0.78	0.49
Sugar Beet Cult. 12 Row	100	8,400	5.60	336	46.08	2.86	3.70	1.67	8.23	1.33	0.95
S-P Boom Sprayer 47 Ft		47,100	25.92	2,592	98.99	0.00	3.26	0.55	3.82	0.74	0.00
S-P Boom Sprayer 60 Ft		48,870	33.09	3,309	102.21	0.00	2.65	0.43	3.09	0.61	0.00
Sprayer 30 Ft	40	3,700	15.36	1,229	29.73	0.46	0.54	0.94	1.94	0.26	0.14
Boom Sprayer 50 Ft	60	4,700	25.61	2,561	32.72	0.36	0.35	0.56	1.28	0.23	0.12
Sprayer Hi Pres 50 Ft	60	19,500	23.64	2,364	59.02	0.39	1.49	0.61	2.50	0.50	0.13
Anhydrous Appl. 30 Ft.	160	15,100	12.73	509	96.10	1.92	4.69	0.94	7.55	1.39	0.67
Fert. Sprd. 4 T./40 Ft.	60	7,900	23.76	713	61.41	0.39	1.69	0.50	2.58	0.30	0.13
Corn Stalk Chopper 12 F	60	7,000	4.65	465	31.06	2.00	2.54	2.13	6.67	1.25	0.68
Rock Picker 6 ft.	75	11,600	1.42	85	55.50	8.26	23.26	7.62	39.13	7.43	2.81

*See footnotes at end of tables.

Table 5 Harvesting Equipment Economic Cost Structure for 1994

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1]	------ Total Cost / Acre[2] ------ Equipment Tractor + Machine	Labor Charge	= Total Dollars	Operating Expense / Acre[3]	Diesel Fuel Gal/Ac
Mower-Conditioner 9 Ft.	40	8,600	4.36	349	33.18	1.61 3.73	2.27	7.60	0.86	0.49
Rotary Hay Mower 6 Ft.	40	4,300	2.91	291	23.97	2.41 2.74	3.09	8.24	1.56	0.73
Rotary Mow/Cond. 9 Ft.	75	10,600	4.36	349	41.03	2.68 4.55	2.17	9.40	1.41	0.91
Hay Rake (Hyd) 9 Ft	40	3,300	3.49	698	19.24	2.01 0.92	2.58	5.51	0.98	0.61
Hay Swather-Cond 12 Ft		32,900	5.82	465	81.55	0.00 12.47	1.55	14.02	2.66	0.48
Swather-Cond 15 Ft		36,100	7.27	582	88.77	0.00 10.97	1.24	12.21	2.34	0.43
Grain Swather 12 Ft		22,500	5.82	465	59.26	0.00 8.64	1.55	10.18	1.88	0.40
Grain Swather 15 Ft		24,700	7.27	582	64.58	0.00 7.64	1.24	8.88	1.69	0.38
Grain Swather 18 Ft		27,200	8.73	698	70.03	0.00 6.99	1.03	8.02	1.52	0.32
Grain Swather 20 Ft		27,600	9.70	776	71.31	0.00 6.43	0.93	7.35	1.41	0.32
Hay Baler Pto Twine	40	9,200	3.78	756	30.24	1.85 2.77	3.38	8.00	1.72	0.56
Round Baler 1000 Lb	60	11,100	3.01	603	35.74	3.10 5.45	3.31	11.86	4.14	1.06
Round Baler 1500 Lb	60	13,100	4.64	927	38.70	2.01 4.18	2.15	8.35	3.03	0.69
Rd Baler/Wrap. 1000 Lb	60	14,400	3.01	603	40.58	3.10 7.05	3.31	13.46	4.99	1.06
Rd Bale Wrapper Silage	60	10,700	2.48	372	34.77	3.76 6.62	3.63	14.01	4.17	1.28
Bale Wrapper Dry Hay	40	5,000	2.48	372	23.77	2.83 3.12	3.63	9.58	2.29	0.85
Forage Harvester 1 Row	60	12,500	0.95	95	41.49	9.87 20.51	13.50	43.88	6.04	3.36
Forage Harvester 2 Row	100	16,300	1.65	165	54.07	9.67 15.29	7.72	32.68	5.52	3.20
Forage SP Harvstr 2 Row		83,300	2.04	305	98.19	0.00 41.95	6.27	48.22	4.24	2.41
Forage SP Harvstr 3 Row		112,100	3.05	458	127.42	0.00 37.54	4.18	41.72	3.71	2.06
Large Forage Blower	60	4,200	1.00	50	30.60	9.33 12.27	9.00	30.60	4.37	3.18
Corn Picker 2-36 Row	40	19,900	1.42	213	43.06	4.95 16.42	9.00	30.36	5.28	1.49
Picker-Sheller 2-36 Row	60	17,800	1.24	186	42.95	7.52 16.81	10.29	34.61	6.58	2.56

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Table 5 Harvesting Equipment Economic Cost Structure for 1994 (Continued)

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1]	------ Total Cost / Acre[2] ------ Equipment Tractor	+ Machine	+ Labor Charge	= Total Dollars	Operating Expense / Acre[3]	Diesel Fuel Gal/Ac
Combine Grain Head Smal	Com	7,800	4.41	882	65.75	10.62	1.39	2.89	14.90	3.58	1.20
Combine Grain Hd Medium	Com	8,500	5.09	1,018	76.81	11.27	1.31	2.51	15.09	3.76	1.25
Combine Grain Head Larg	Com	10,400	6.79	1,358	88.78	10.00	1.20	1.88	13.08	3.36	1.13
Soybean Combine Hd Smal	Com	10,200	3.86	772	67.61	12.14	2.07	3.31	17.51	4.15	1.37
Soybean Combine Hd Medi	Com	12,000	4.45	891	79.51	12.88	2.10	2.87	17.85	4.37	1.43
Soybean Combine Hd Larg	Com	13,600	5.35	1,069	91.27	12.69	1.99	2.39	17.07	4.32	1.44
Corn Combine 3-30 Small	Com	10,200	2.23	445	67.60	21.04	3.58	5.73	30.35	7.19	2.38
Corn Combine 2-38 Small	Com	6,500	1.87	374	64.74	25.05	2.73	6.82	34.60	8.38	2.83
Corn Combine 3-38 Small	Com	11,700	2.82	564	68.76	16.61	3.24	4.52	24.37	5.72	1.88
Corn Combine 4-36Medium	Com	13,800	3.36	672	80.93	17.08	3.21	3.80	24.09	5.84	1.89
Corn Combine 4-30Medium	Com	17,000	2.80	560	83.36	20.49	4.72	4.56	29.77	7.11	2.27
Corn Combine 6-30 Large	Com	23,100	4.20	840	98.60	16.16	4.28	3.04	23.48	5.69	1.83
Corn Combine 8-30 Large	Com	25,200	5.09	1,018	100.29	13.33	3.86	2.51	19.70	4.73	1.51
Corn Combine 12-30Jumbo	Com	38,000	7.64	1,527	116.53	9.72	3.87	1.67	15.26	3.79	1.39
Potato Windrower 2 Row	75	23,700	1.49	149	59.01	7.84	25.15	6.51	39.50	6.23	2.66
Potato Windrower 4 Row	75	54,000	2.99	299	106.19	3.92	28.37	3.25	35.54	5.04	1.33
Potato Harvester Seed2R	120	53,910	1.38	295	107.14	15.28	35.68	26.74	77.70	16.51	4.61
Potato Harvester Seed4R	160	78,600	2.76	590	133.18	8.88	26.04	13.37	48.29	11.60	3.07
Potato Harvester 2 Row	120	43,000	1.84	294	105.18	11.46	25.69	20.06	57.21	10.01	3.46
Disk Bean Top Cutter 6R	100	11,100	6.40	512	50.05	2.50	3.32	1.99	7.82	1.34	0.83
Sugar Beet Lifter 4 Row	100	40,400	3.47	277	120.26	4.62	26.40	3.68	34.71	8.29	1.53
Sugar Beet Lifter 6 Row	120	51,200	5.20	416	149.86	4.05	22.31	2.45	28.82	6.97	1.22
Sugar Beet Topper 6 Row	75	16,800	5.33	427	56.74	2.20	6.29	2.16	10.64	1.70	0.75
Sugar Beet Topper 12Row	140	31,800	10.67	853	97.89	2.16	5.94	1.08	9.18	1.64	0.70

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Table 5 Harvesting Equipment Economic Cost Structure for 1994 (Continued)

Machine	Tractor Size (HP)	Net Cost of A New Implement	-- Estimated -- Work Performed Acres/hr	Ac/yr	Total Cost /Hour[1]	------ Total Cost / Acre[2] ------ Equipment Tractor	+ Machine	+ Labor Charge	= Total Dollars	Operating Expense / Acre[3]	Diesel Fuel Gal/Ac
Sugar Beet Wagon 8 Ton	75	8,600	3.47	277	37.67	3.38	4.89	2.60	10.87	1.83	1.15
Manure Spreader 150 Bu	75	3,900	3.49	349	28.88	3.36	2.29	2.63	8.27	2.08	1.14
Manure Spreader 225 Bu	100	5,400	3.49	349	36.23	4.58	3.16	2.63	10.38	2.89	1.52
Manure Spreader 400 Bu	100	9,900	4.65	465	45.30	3.44	4.32	1.97	9.73	2.78	1.14
Gravity Grain Box 185Bu	60	1,600	1.65	215	20.85	5.64	1.52	5.44	12.60	2.52	1.92
Gravity Grain Box 240Bu	75	2,100	1.65	215	23.89	7.08	1.92	5.44	14.44	3.17	2.41
Belt Bottom V Box 24Ft.	Tan	13,650	1.65	215	46.15	11.76	10.70	5.44	27.89	4.93	2.84
Baled Hay Wagon	40	2,100	3.78	945	26.95	1.85	0.51	4.76	7.13	0.84	0.56
Forage Wagon 14 Ft	40	6,000	1.65	215	23.96	4.24	4.80	5.44	14.48	2.28	1.28
Forage Wagon 16 Ft	40	7,700	1.65	215	25.94	4.24	6.00	5.44	15.68	2.47	1.28
1 Ton Hay Stacker	60	14,800	4.15	829	38.69	2.25	4.00	3.08	9.33	2.42	0.77
3 Ton Hay Stacker	75	21,800	4.84	1,064	48.28	2.42	4.92	2.64	9.98	3.04	0.82
6 Ton Hay Stacker	100	35,100	5.53	1,548	65.91	2.90	6.72	2.31	11.93	4.75	0.96

1) Total cost per hour is calculated as yearly depreciation, interest, insurance, housing and repairs, divided by hours used per year. Implement and power unit costs are summed. Fuel lubricants, and labor are added to the total.

2) Total cost per acre is total cost per hour divided by acres/hour. Includes operating expenses, labor and overhead costs.

3) Fuel, lubricants, repairs and maintenance, but not labor. Labor is listed separately.